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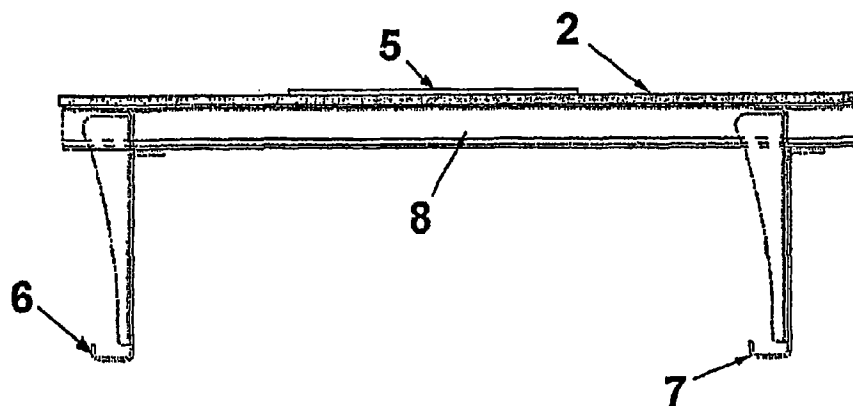
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(54) Title: FUSELAGE



(57) Abstract: The fuselage is conceived in such a way as to prevent the spread of flames produced by a source of fire and acting on the fuselage from outside the aircraft environment. The fuselage concept takes into account materials or material combinations that will scarcely allow protection of the cabin area of an aircraft (upon emergency landing) to be violated by flames spreading from outside the aircraft environment, which may facilitate an evacuation of passengers from the aircraft. An aircraft fuselage, whose fuselage structure, in addition to other structural elements that are components of the mechanical strength bracing of the fuselage and help absorb its forces, encompasses an exterior skin (2) consisting of various respective materials, which are designed to be resistant to shear, and incorporated as a bearing element into the mechanical strength bracing (6,7,8) to absorb and transfer the forces and torques acting thereupon. The exterior skin (2) is fabricated from a burn-through resistant semi-finished material consisting of a non-metallic material or a fireproof metallic material, wherein the semi-finished material can be molded through further processing. Also, the exterior skin may be realized by a semi-finished material combining a non-metallic material and a metallic material, wherein the produced exterior skin product is a hybrid material that can be molded and joined through further processing.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2005/000038

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B64C1/40 B64C1/00 A62C3/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B64C A62C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 919 839 A (BRONZAVIA) 27 February 1963 (1963-02-27) page 1, lines 10-14,30-34,43-47,52-64 page 2, lines 85-98; figures -----	1,8
X	EP 0 475 677 A (BRITISH AEROSPACE PUBLIC LIMITED COMPANY) 18 March 1992 (1992-03-18) column 3, lines 35-42; figures -----	1,8
X	US 5 154 373 A (SCOTT ET AL) 13 October 1992 (1992-10-13) column 1, line 49 - column 2, line 21 column 2, line 51 - column 3, line 18 column 3, line 48 - column 4, line 31; figures ----- -/-	1,5-7, 13,14

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

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O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

29 July 2005

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2005/000038

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/017590 A1 (FAY RALPH MICHAEL ET AL) 14 February 2002 (2002-02-14) the whole document -----	1,5-8, 13-15
A	EP 1 164 006 A (JOHNS MANVILLE INTERNATIONAL INC) 19 December 2001 (2001-12-19) -----	
A	DE 44 17 889 A1 (BURKHART GROB LUFT- UND RAUMFAHRT GMBH & CO. KG, 86874 TUSSENHAUSEN, D) 23 November 1995 (1995-11-23) column 1, lines 3-12; figures -----	1
X	US 6 286 785 B1 (KITCHEN NICHOLAS DONALD) 11 September 2001 (2001-09-11) column 1, lines 20-35 column 1, line 66 - column 2, line 8 column 2, lines 24-42 column 5, line 43 - column 6, line 21 column 7, lines 19-25 column 11, lines 39-42; figures -----	2,4,10, 16
X	US 6 114 050 A (WESTRE ET AL) 5 September 2000 (2000-09-05) column 1, lines 11-16 column 2, lines 31-44 column 3, lines 51-61 column 5, lines 1,2 column 6, lines 19-37 column 10, lines 35-59 column 13, lines 45-52; figures -----	2-4,9, 10,16
X	DE 202 20 600 U1 (EUROCOPTER DEUTSCHLAND GMBH) 24 December 2003 (2003-12-24) paragraphs '0016!, '0019!, '0021! - '0023!, '0027!, '0030! - '0038!, '0053!, '0054!; figures -----	2-4,9, 10,16
A	US 2 945 653 A (ATKIN EDGAR H) 19 July 1960 (1960-07-19) column 1, lines 15-29 column 2, lines 18-28,47-61 column 3, lines 23-45,64-74 column 4, lines 6-11; figures -----	1-16
A	US 4 310 132 A (FROSCH ET AL) 12 January 1982 (1982-01-12) column 2, lines 31-37 -----	11
A	US 5 051 300 A (ROUSSEAU ET AL) 24 September 1991 (1991-09-24) abstract -----	11
5 6	A US 2003/080251 A1 (ANAST PETER Z) 1 May 2003 (2003-05-01) -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2005/000038

Box II Observations where certain claims were found unsearchable (Continuation of Item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1,5,6,7,8,13,14,15

Aircraft fuselage outer skin made of burn-through resistant, either metallic or non-metallic material.

2. claims: 2,3,4,5,6,7,9,10,11,12,13,14,15,16

Aircraft fuselage outer skin made of a hybrid compound, the compound combining a metallic and a non-metallic material.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2005/000038

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 919839	A	27-02-1963	FR 1215912 A	21-04-1960
EP 0475677	A	18-03-1992	EP 0475677 A1	18-03-1992
US 5154373	A	13-10-1992	DE 3931976 A1	29-03-1990
			JP 2102894 A	16-04-1990
			JP 2538351 B2	25-09-1996
US 2002017590	A1	14-02-2002	AU 3691300 A	19-06-2000
			CA 2326314 A1	08-06-2000
			DE 69920764 D1	04-11-2004
			EP 1165367 A2	02-01-2002
			WO 0032388 A2	08-06-2000
			US 6322022 B1	27-11-2001
EP 1164006	A	19-12-2001	US 6627561 B1	30-09-2003
			CA 2351031 A1	16-12-2001
			EP 1164006 A1	19-12-2001
			US 2004132364 A1	08-07-2004
DE 4417889	A1	23-11-1995	NONE	
US 6286785	B1	11-09-2001	NONE	
US 6114050	A	05-09-2000	US 5866272 A	02-02-1999
			EP 0783960 A2	16-07-1997
			JP 9193296 A	29-07-1997
DE 20220600	U1	24-12-2003	DE 10340561 A1	18-03-2004
US 2945653	A	19-07-1960	NONE	
US 4310132	A	12-01-1982	NONE	
US 5051300	A	24-09-1991	FR 2635773 A1	02-03-1990
			AT 98621 T	15-01-1994
			CA 1329070 C	03-05-1994
			DE 68911443 D1	27-01-1994
			DE 68911443 T2	09-06-1994
			DK 427789 A	01-03-1990
			EP 0359614 A1	21-03-1990
			ES 2048303 T3	16-03-1994
			IE 62268 B1	11-01-1995
			JP 2106337 A	18-04-1990
			JP 2680439 B2	19-11-1997
			NO 893408 A	01-03-1990
			US 5284685 A	08-02-1994
US 2003080251	A1	01-05-2003	NONE	